REMARKS

Claims 10-16 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The rejected claims are accordingly amended, by the above claim amendments, and the presently pending claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections. The entered claim amendments are directed solely at overcoming the raised indefiniteness rejection(s) and are not directed at distinguishing the present invention from the art of record in this case.

The Applicant thanks the Examiner for indicating that claims 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claim(s). Although the claims as amended are believed allowable as discussed in the remarks below, in accordance with the Examiner's present indication of allowable subject matter, new independent claim 19 now includes substantially all the subject matter of claims 10 and 11, and is believed to be allowable.

Next, claims 10 and 13-18 are rejected, under 35 U.S.C. § 103(a), as being unpatentable over Baxter et al. `777 in view of Runde et al. `954. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the above amendments and the following remarks.

As the Examiner is aware, in order to properly support a combination of references under 35 U.S.C. § 103(a) the cited references must provide some disclosure, teaching or suggestion which would lead one of skill in the art to combine the references and achieve the presently claimed invention. The Federal Circuit has traditionally upheld a standard of express disclosure, or inherent motivation or teaching to support an obviousness rejection, "The lesson of this case appears to be that prior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings." In re Sernaker, 702 F.2d 989, 995-6, 217 USPQ 1, 6 (CAFC 1983).

Recently, a US supreme Court decision has potentially altered the breadth of the well established requirement to support obviousness in the references in the case of KSR v. Teleflex 550 S. Ct. No. 04-1350, however the Applicant notes that the Supreme Court has not overturned the Federal Circuit's case law. While the TSM (teaching, suggestion, motivation) test may be applied to rigidly at times by the Federal Circuit, as the U.S. Supreme Court noted in KSR v. Teleflex, 550 S. Ct. No. 04-1350 "...it can still be important to identify a reason the would have prompted a person of ordinary skill in the art to combine the elements as the new invention does." The Applicant's understanding is that a valid combination of references must at least be supported by rational comparison, similar teachings and to a great extent a functional and structural similarity.

In the present matter where the only apparent similarity is that both references relate to control methods for structurally and functionally different automatic transmissions, and where both control systems are focused on entirely different problems solved in each reference, it is the Applicant's position that the merely inherent and relative subject matter of such different problems and solutions does not rise to a level which would enable a supportable combination. More specifically Runde et al. `954 relates to skip-shifting and discusses the issue of controlling the transmission based on releasing the off-going clutch C3 and engaging the on-going clutch C5, and controlling the engine torque so that the transmission input speed reaches the target gear speed after some estimated period of time. A review of this reference reveals that this skip-shift control system has nothing to do with synchronizing the transmission with a differential via the respective engagement of a multi-group transmission and a main transmission (8) as in Baxter et al. `777 or the present invention. Baxter et al. `777 relates to a differential gear in a transfer case 25 of a four-wheel drive vehicle and does not discuss anything about skip-shifting of the transmission. Thus, the Applicant does not believe that such a combination is proper to support the obviousness rejection of the presently pending claims.

Even if the references can be combined, and absent some rational to combine, the Applicant adamantly opposes any such combination, each reference controls the engine via the ECU. In fact, if the references can be combined this engine control by the ECU as explained

in each reference would merely be layered on top of one another to potentially facilitate skip-shifting as well as control the synchronization of the differential.

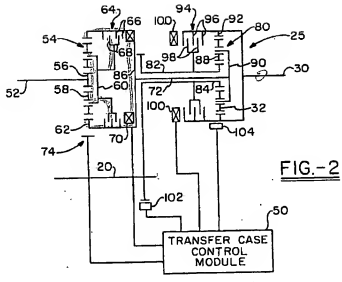

FIG.-2

As shown in Fig. 2 of Baxter et al. `777, the transfer case 25 divides torque from the vehicle engine 28 and transmission unit 26 between the front output shaft 20, and the respective rear drive shaft 30.

Observing Fig. 2 of Baxter et al. `777 relative to the input shaft 52 a front clutch 64 in the differential provides a first predetermined gear ratio to shaft 72 when actuated, and when deactivated provides a second predetermined ratio to shaft 72. The shifting "on-the-fly" between a high and low gear ratios is provided by actuation of a shift means 74 as described in detail at col. 3 lines17-53. A second clutch 94 is provided in the differential to divide torque between the front and rear drive wheels and is actuated upon detecting a predetermined difference in speed of the front and rear output shafts 20 and 30, i.e. to prevent slip between the front and rear output shafts 20 and 30 respectively.

As discussed in Baxter et al. `777 at cols. 4-5 and shown in Fig. 3, this on-the-fly transfer case shifting apparatus has a transfer case control module 50 which is coupled to an engine control module 110 for controlling the engine and transmission. The transfer case control module 50 determines from the engine control module 110 whether vehicle operation is within a range which will allow safe shifting between a high range and a low range. As noted in col. 5, lines 43-51;

> If vehicle operation is not compatible with the selected drive range, the transfer case control module will control the engine fuel system via the engine control module 110 to therefore reduce the torque supplied to the input shaft 52 (shown in FIG.2) of transfer case 25. Alternatively, or in conjunction with

controlling the fuel system the transfer case algorithm 120 will generate an output signal on line 132 to shift the transmission gear ratio so as to match the transmission output speed to the transfer case output speed.

What is arguably shown by the reference is that the rotational speed of the engine is controlled by the control module to a point where the differential can shift between high and low torque states. This method, as known in the art and explained in the Applicant's specification in the Background of the Invention at paragraphs 9-11, requires a certain amount of time, particularly where a large difference in rotational speeds leads to longer time period for equalization.

What is also not shown by this reference, not even the table illustrated at col. 7, is that in the presently claimed invention, when a driver, or a driver actions, cause a shift from high to low, or vice-versa in the range group, is that the rotational speed of the engine is adjusted by changing the power transmitting capacity of at least one shift element in the automatic transmission to a coupling speed which is equivalent to the targeted transmission ration of the multi-group transmission and with which the range-change unit shift element to be engaged is synchronous.

In this regard, claim 10 has been amended to more clearly recite the novel step of "adjusting a speed of rotation (n_{mot}) of the motor (2) by changing a power transfer capability of at least one shifting element of the automatic transmission (8) to a connective speed of rotation (n_{mot-a}) equivalent to the ratio of the multi-group transmission (4) at which the closable shifting element (24, 25) of the range group (9) is synchronized."

The Examiner has combined Runde et al. `954 with the above discussed reference to support the obviousness rejection, however, Runde et al. `954 merely discloses an improved downshift or skip-shift control for automatic transmissions where both optimized sequential shifting and skip-down shifting are desired. Paragraphs 17-19 in Runde et al. `954 allegedly show that a number of clutches C1, C2, C3... can be controlled via valves 60, 62, 64 in a transmission 14 to accomplish engine control for example downshifting operations, however there is nothing which discloses or teaches the Applicant's claimed step of "adjusting a speed

of rotation (n_{mot}) of the motor (2) by changing a power transfer capability of at least one shifting element of the automatic transmission (8) to a connective speed of rotation (n_{mot-a}) equivalent to the ratio of the multi-group transmission (4) at which the closable shifting element (24, 25) of the range group (9) is synchronized."

Paragraph 0021 of Runde et al. `954 in fact, just as in Baxter et al. `777, teaches using the ECU to control the engine speed. In regards to skip shifting Runde et al. `954 explains,

> [i]n general, this involves a concurrent control of both engine torque and off-going clutch release. Releasing the off-going clutch C3 effectively shifts the transmission 14 to neutral, *and the engine torque command* controls the rate at which the transmission input speed TIS increases toward the synchronous speed of the target gear (1st). (Emphasis added)

Also, subsequent paragraph 0022 line 7 further explains the engine torque command, "The throttle setting THR abruptly increases at time T0, and produces a corresponding increase in engine output torque EOT." Therefore, even if these references can be combined, and the Applicant adamantly disputes any such proposition, such a combination still fails to teach, disclose or suggest in any manner the specifically recited steps and features of the present invention.

Similarly, new claim 20 includes the step of, "adjusting a speed of rotation (n_{mot}) of the motor (2) by changing a power transfer capability of at least one shifting element of the automatic transmission (8) to a desired connective speed of rotation (n_{mot-a}) substantially equivalent to the ratio of the multi-group transmission (4) at which the closable shifting element (24, 25) of the range group (9) is synchronized; " Again, as neither reference either alone or in combination discloses, suggests or teaches such a step, the Applicant believes claim 20 and dependent claim 21 to be allowable as well.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised obviousness rejections should be withdrawn at this time. If the Examiner disagrees with

the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Baxter et al. `777 and Runde et al. `954 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejections should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,

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